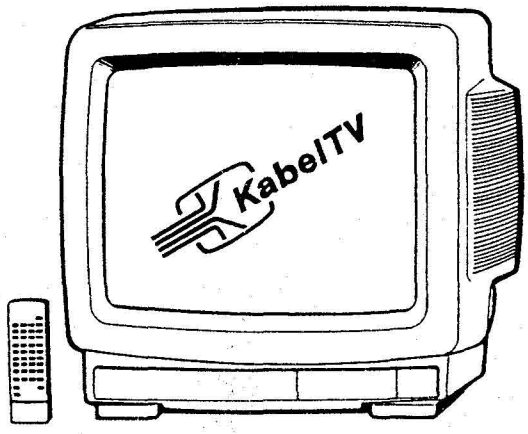
Service Manual

ORION

COLOR TELEVISION RECEIVER

PAL/SECAM

COLOR 520 DK



Chassis Code:

B

SPECIFICATIONS

PICTURE SIZE		20 inch
SYSTEM		PAL/SECAM
FREQUENCY RANGE:	VHF(L)	2 - 4 ch
	VHF(H)	5 - 12 ch
	UHF	21 - 69 ch
	CATV	S1 - S20 ch
INTERMEDIATE FREQUENCY:		
Picture IF Carrier Frequency		38.9 MHz
Color Sub Carrier Frequency		34.47 MHz
Sound IF Carrier Frequency		33.4 MHz
SOUND INTERMEDIATE FREQUENCY		5.5 MHz
10% THD OUTPUT POWER		0.9 W x 2
MAXIMUM OUTPUT POWER		1.0 W x 2
SPEAKER		8 ohm x 2
POWER SOURCE		AC 220V

IMPORTANT

*USE AN ISOLATION TRANSFORMER WHEN PERFORMING ANY SERVICE ON THIS CHASSIS.

*WHEN REMOVING A PCB OR RELATED COMPONENT, AFTER UNFASTENING OR CHANGING WIRE, BE SURE TO PUT WIRE BACK IN ITS ORIGINAL POSITION.

*INFERIOR SILICON GREASE CAN DAMAGE IC's AND TRANSISTORS.
WHEN REPLACING AN IC's OR TRANSISTORS, USE ONLY SPECIFIED SILICON GREASE (YG6260M).
REMOVE ALL OLD SILICON BEFORE APPLYING NEW SILICON.

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ELECTRICAL ADJUSTMENTS

1. BEFORE ELECTRICAL ADJUSTMENT

These are adjustments when you replace electric parts or PCB ass'y.
When you repair the electric circuit, please read these adjustments.

1-1: Prepare the following measurement tools for the electrical adjustment.

1. Oscilloscope (2 Channel Type)
2. Digital Voltmeter
3. Color Bar Generator
4. Sweepmarker Generator
5. VIF Unit

2. BASIC ADJUSTMENT

2-1: VIF AND AFT

NOTE
Connect input and output terminal of the sweepmarker generator to circuit as shown in Fig. 2-1-a, then adjust it.

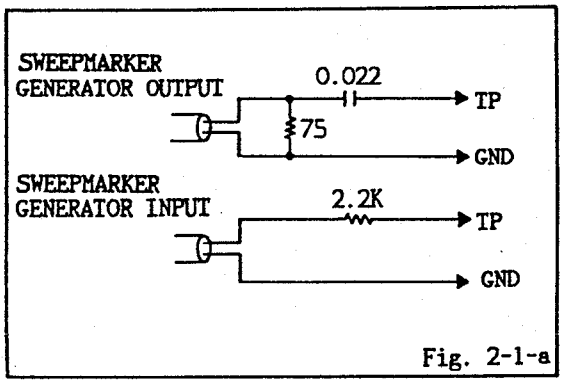
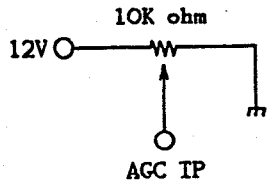


Fig. 2-1-a

1. Connect output terminal of the sweepmarker generator to TP101.
2. Connect input terminal of the sweepmarker generator to TP107.
3. Connect the volume 10K ohm to IF AGC terminal (TP104), 12V line and ground, then adjust to make the waveform of the oscilloscope be easy to watch.



4. Adjust **L204** until the waveform marker (38.9MHz) will become as shown in **Fig. 2-1-b.**

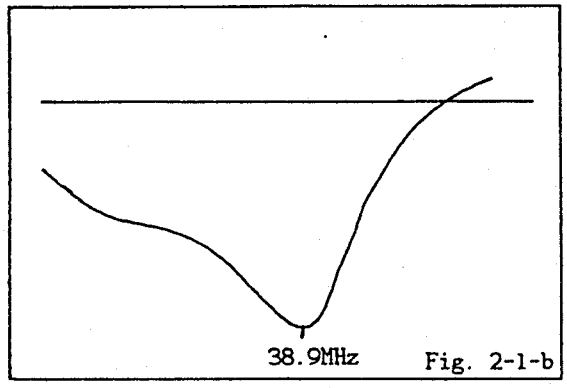


Fig. 2-1-b

5. Disconnect output terminal of the sweepmarker generator from TP101, then connect it to TP of the Tuner Pack. (Connect a 2.7K ohm resistor between them.)
6. Connect the resistor 100 ohm between TP109 and TP110.
7. Adjust **L206** until the waveform will become as shown in **Fig. 2-1-c.**

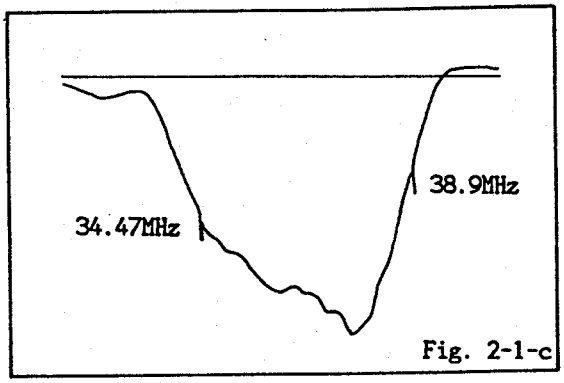


Fig. 2-1-c

8. Disconnect the volume 10K ohm and resistor 100 ohm.
9. Input a 38.9MHz signal to TP of the tuner pack. (Connect a 2.7K ohm resistor between them.)
10. Connect the digital voltmeter to TP002.
11. Turn off the AFT switch.
12. Check the voltage of TP002.
13. Turn on the AFT switch.
14. Adjust **L203** again the same AFT OFF voltage at the sudden changing point of the voltage.

2-2: BELL FILTER

NOTE
Connect input and output terminal of the sweepmarker generator to circuit as shown in Fig. 2-2-a, then adjust it.

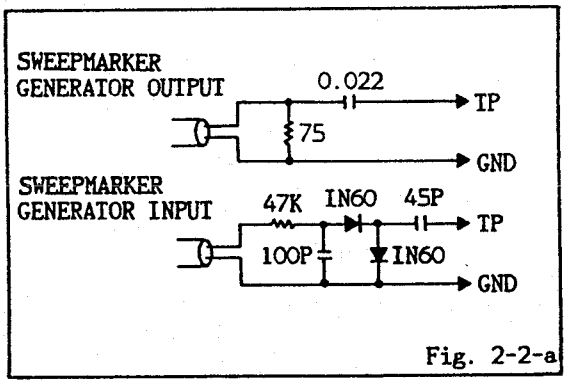


Fig. 2-2-a

1. Connect output terminal of the sweepmarker generator to TP of the Tuner Pack.
2. Connect input terminal of the sweepmarker generator to center tap of L605.
3. Adjust **L605** until the waveform will become as shown in **Fig. 2-2-b.**

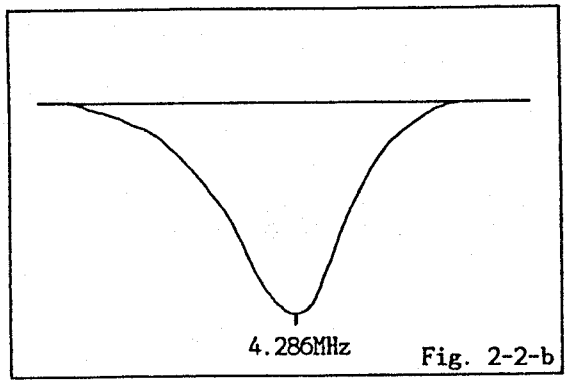


Fig. 2-2-b

ELECTRICAL ADJUSTMENTS

2-3: SECAM IDENT

1. Receive the SECAM color bar pattern.
2. Set the PAL/SECAM switch to SECAM position.
3. Set the AFT switch ON position.
4. Connect a digital voltmeter to TP603.
5. Adjust **L606** until voltage will be maximum. (More than 8V)

2-4: SECAM DET

1. Receive the SECAM color bar pattern.
2. Set the PAL/SECAM switch to PAL position.
3. Set the Color and Contrast controls to maximum position.
4. Adjust **VR605** and **VR606** until white part of the pattern is not changed even though you turn color control from minimum to maximum.

2-5: RF AGC

NOTE
Adjust after performing adjustments in section 2-1.

2-5-A: Weak electric field case.

1. Receive the noisy channel.
2. Adjust **VR201** until noise will be weak.
3. Change the channel, confirm other channels are normal.

2-5-B: Strong electric field case.
(When diagonal streaks, radio frequency interference appear.)

1. Adjust **VR201** until diagonal streaks will be weak.
2. When it is not good condition after adjusting VR201, install the attenuator to the antenna terminals, then adjust step (1) again.
3. Confirm noise will appear.
4. Change the channel, confirm other channels are normal.

2-6: CUT OFF

1. Receive the Color Bar Pattern.
2. Set the Bright and Contrast controls to minimum position
3. Connect the oscilloscope to TP24.
4. Adjust the Screen control until voltage will be DC140V. **(Refer to Fig. 2-3)**

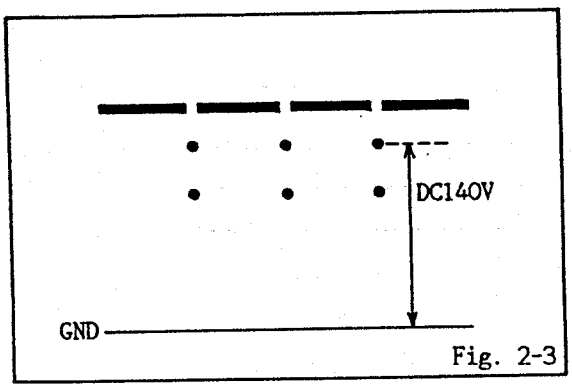


Fig. 2-3

2-7: FOCUS

1. Receive the broadcasting signal.
2. Adjust the focus control until picture will be distinct.

2-8: VERTICAL SIZE

1. Receive the crosshatch pattern from the color bar generator.
2. Adjust the bright and contrast controls until the crosshatch pattern is distinct.
3. Adjust **VR401** until the center of crosshatch is square.
4. Receive broadcasting signal, then confirm picture is normal

2-9: HUE DELAY

1. Receive the DEM Pattern.
2. Connect the dual oscilloscope to TP601 and TP602.
3. Adjust **VR601** ,**L603** and **VR607** until the waveform will be straight line. **(Refer to Fig. 2-4)**

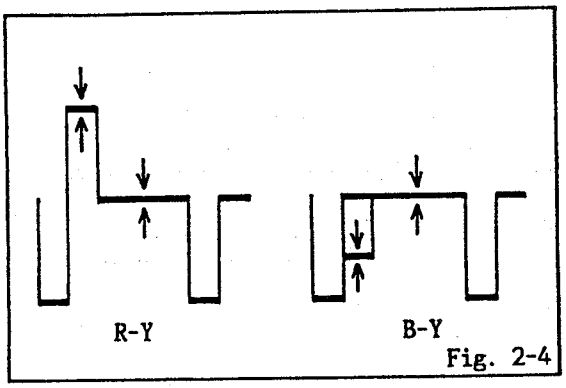


Fig. 2-4

2-10: HORIZONTAL POSITION

1. Receive the color bar pattern.
2. Adjust **VR402** until the color width of both of screen edges will be equal.
3. Receive broadcasting signal, then confirm picture is normal.

2-11: SUB BRIGHT

NOTE
Proceed this adjustment in 20 minutes after the Power ON.

1. Receive the monochrome pattern.
2. Set the AFT switch ON position.
3. Set the Bright and Contrast controls to minimum position.
4. Adjust **VR603** until 75% of gray scale will begins to lighten.

2-12: VERTICAL POSITION

1. Receive the color bar pattern.
2. Adjust **VR403** until horizontal line of the color bar will come to around center of the CRT.

2-13: CONSTANT VOLTAGE

1. Receive the broadcasting signal.
2. Set each control to normal position.
3. Connect the digital voltmeter to TP501.
4. Adjust **VR501** until the voltage is DC103V.

ELECTRICAL ADJUSTMENTS

2-14: SUB COLOR

1. Receive the Color Bar Pattern.
2. Press the NORMAL button on the remote control unit.
3. Connect the oscilloscope to TP22.
4. Set the AFT switch ON position.
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to four scales on the screen of the oscilloscope.
6. Adjust **VR602** until the red color level is set to the third scale (75%) from white 0%. **(Refer to Fig. 2-5)**

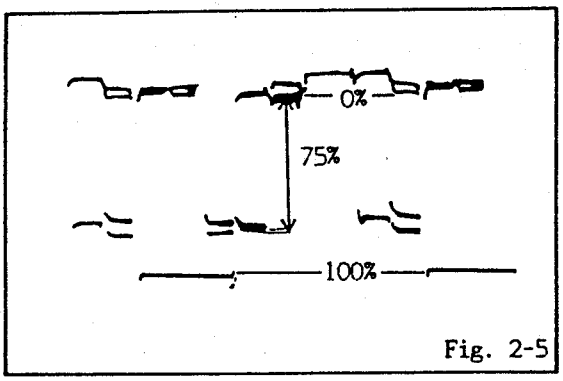


Fig. 2-5

2-15: SIF

(5.5MHz)

1. Sat the AC/DC selector switch to AC position.
2. Connect the oscilloscope to **TPA01.**
3. Connect the distortion meter to SP OUT.
4. Receive the sound signal(5.5MHz).
5. Adjust **LA02** until the waveform of **TPA01** is maximum and also flat.
6. Ensure the distortion factor of SP OUT is within **3%** at this time.

(6.0MHz)

1. Connect output terminal of the sweepmarker generator to TP103. **(Refer to Fig. 2-1-a)**
2. Connect input terminal of the sweepmarker generator to TP102. **(Refer to Fig. 2-1-a)**
3. Adjust **LA02** until the waveform becomes as shown in **Fig. 2-6.**

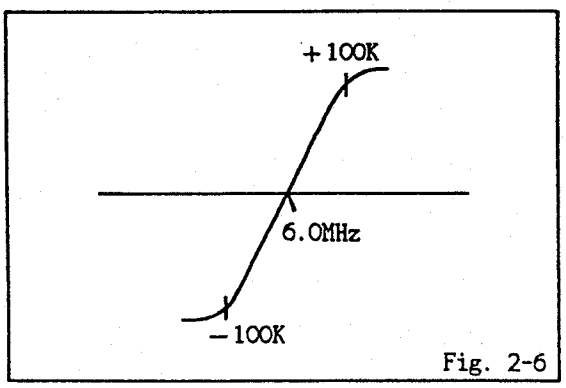


Fig. 2-6

3. PURITY AND CONVERGENCE ADJUSTMENT

NOTE
1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE
Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at ends are equally wide.
3. Move the deflection yoke backward (To neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

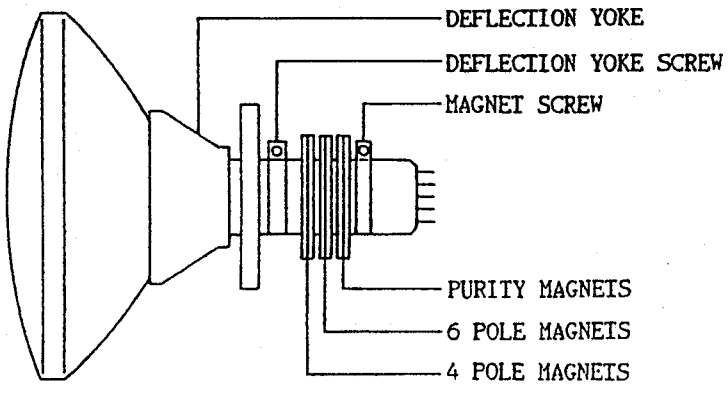


Fig. 3-1

ELECTRICAL ADJUSTMENTS

3-3: STATIC CONVERGENCE

NOTE
Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

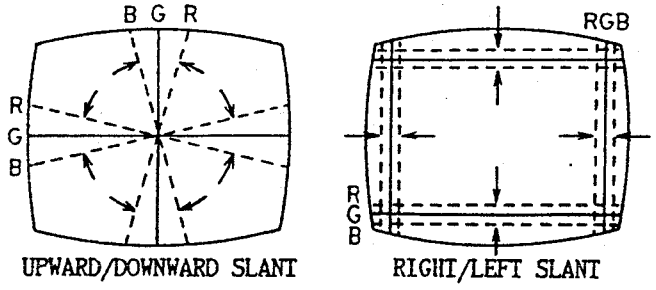
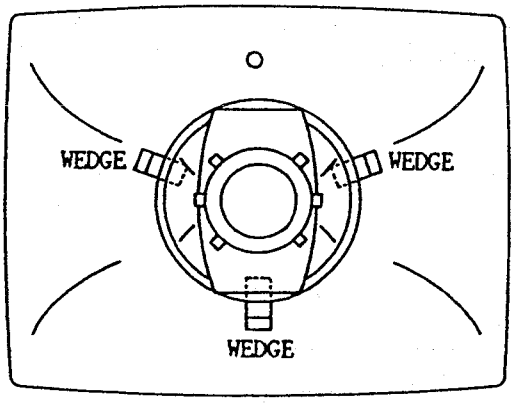


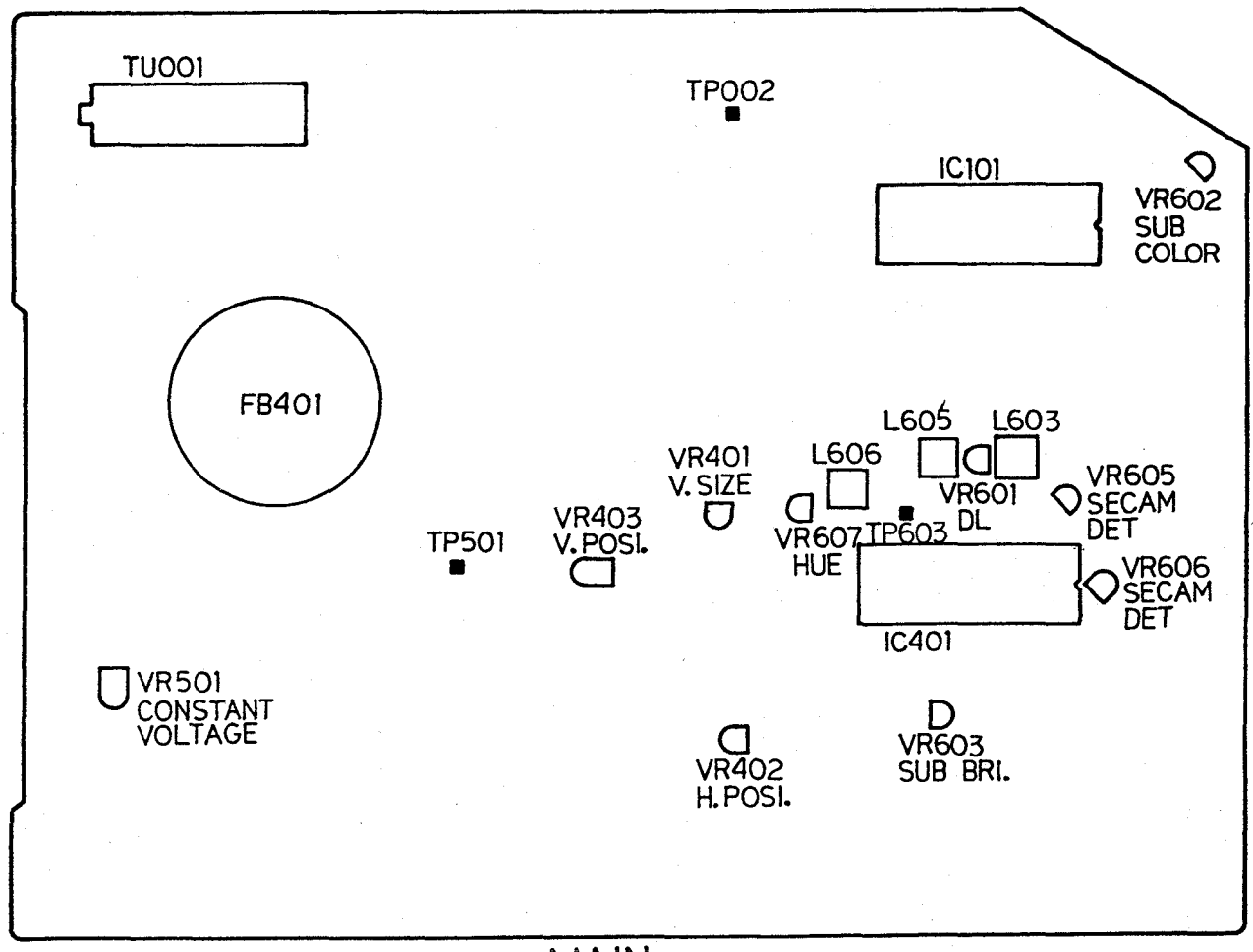
Fig. 3-2-a



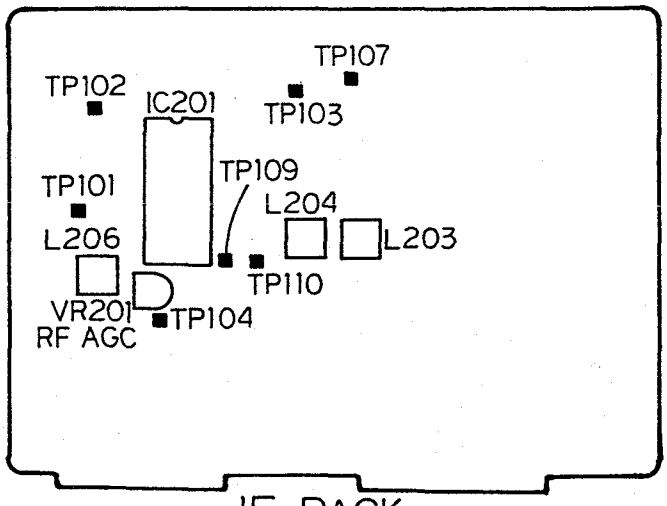
WEDGE POSITION

Fig. 3-2-b

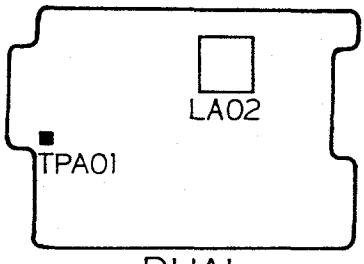
MAJOR COMPONENTS LOCATION GUIDE



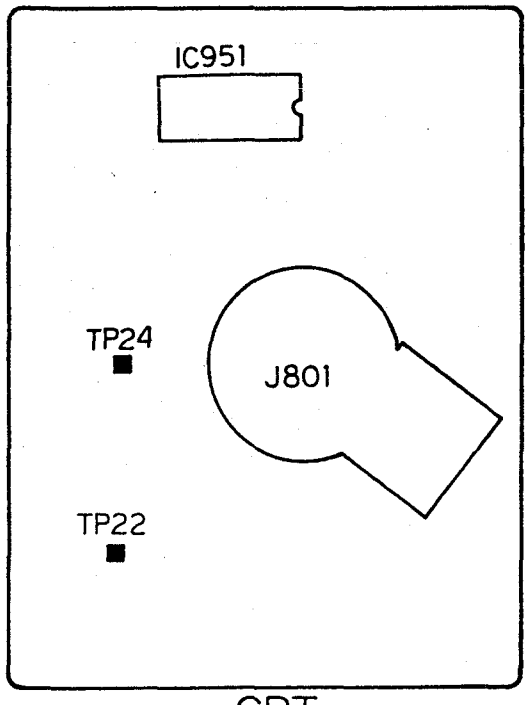
MAIN



IF PACK

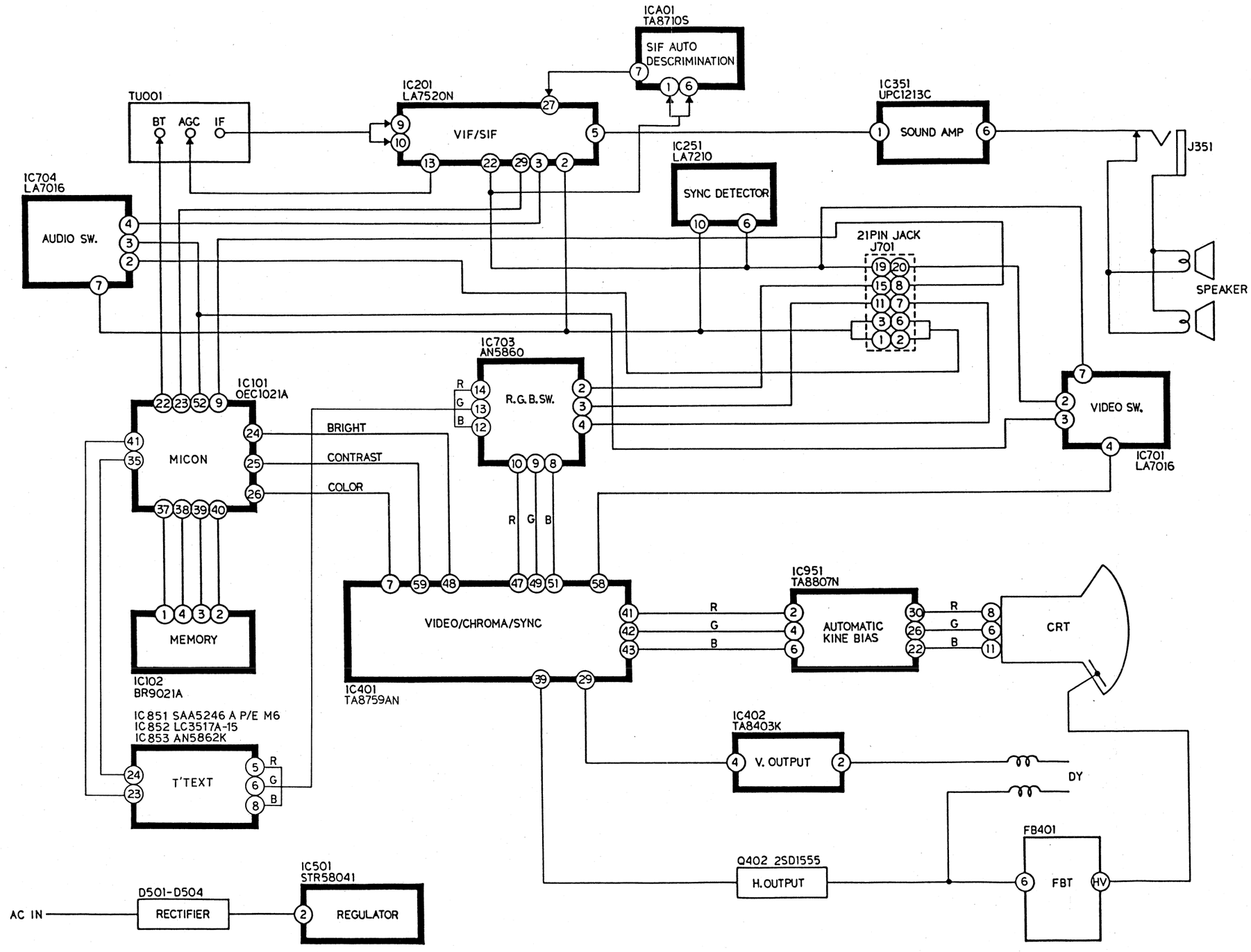


DUAL



CRT

BLOCK DIAGRAM



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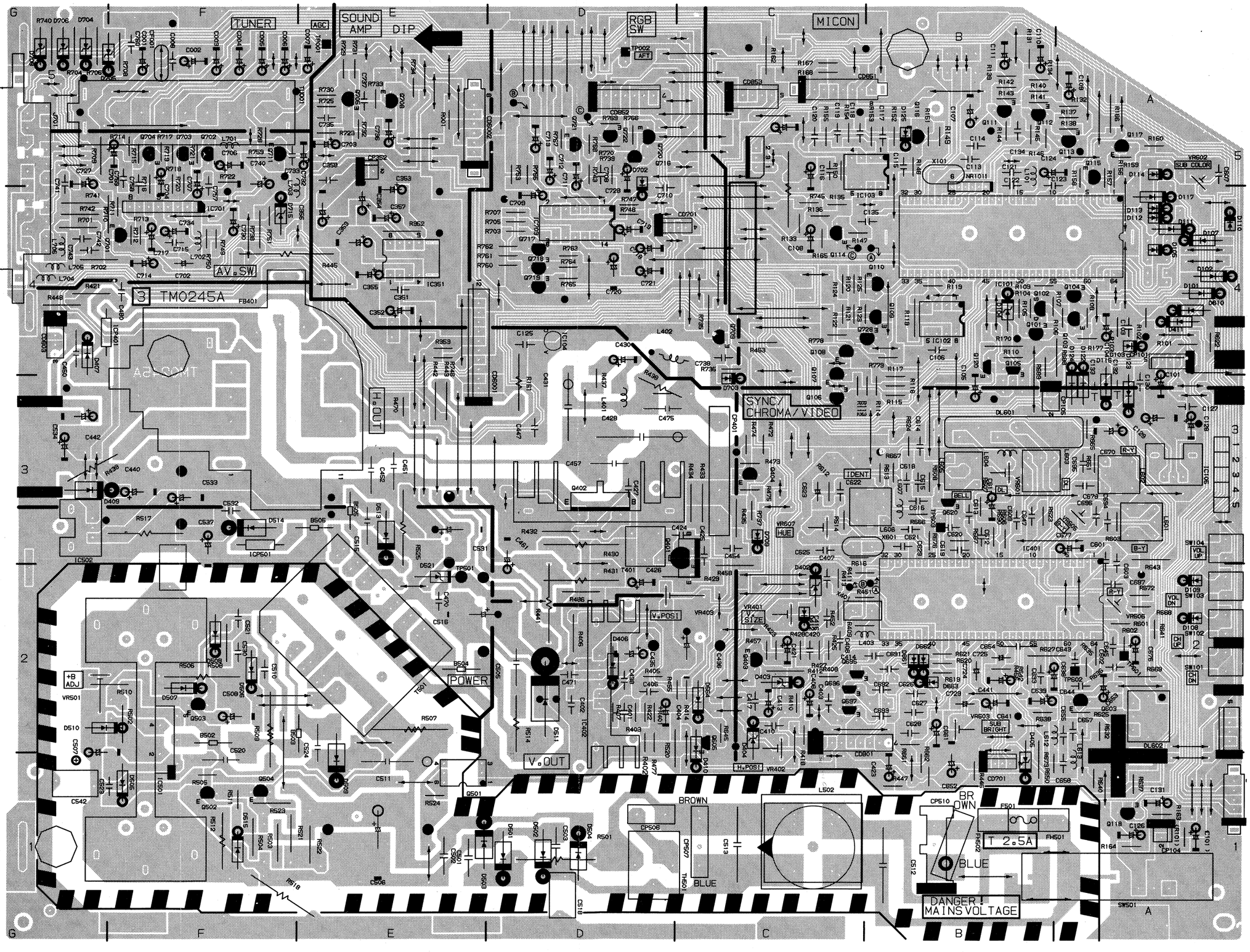
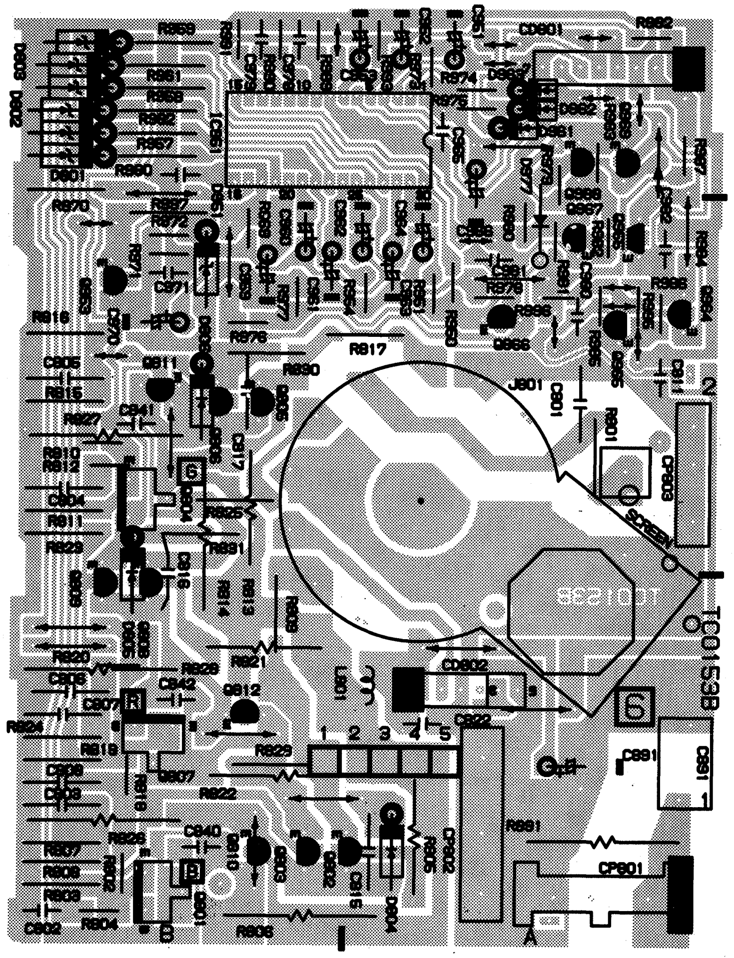
PRINTED CIRCUIT BOARD

MAIN

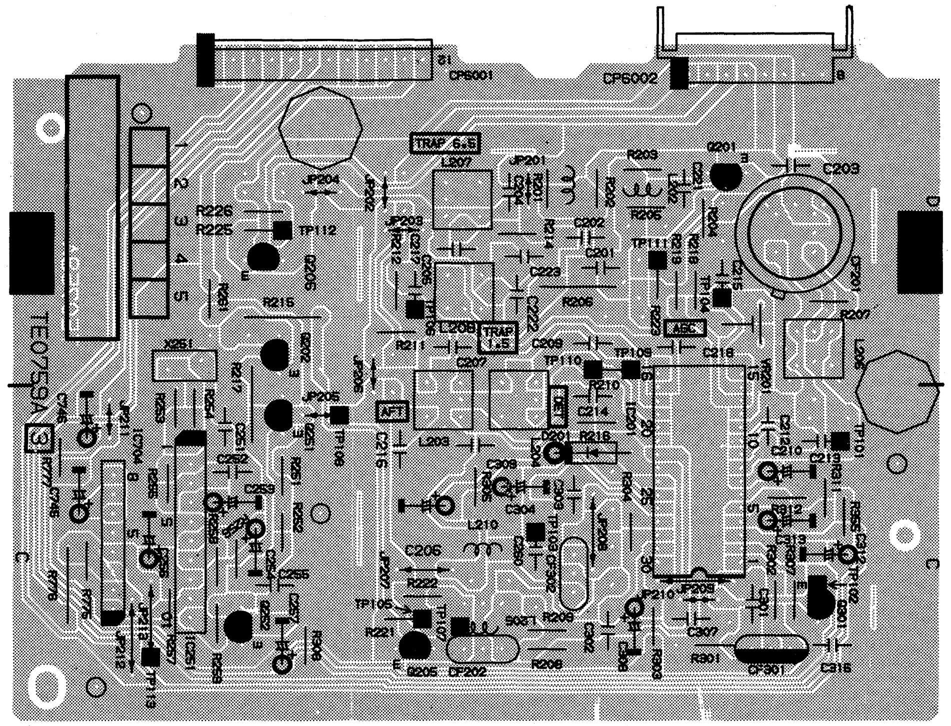


PRINTED CIRCUIT BOARDS

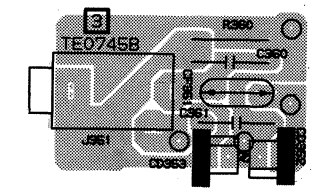
CRT/AKB



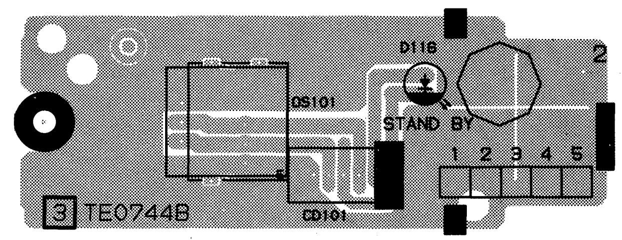
IF PACK



EARPHONE

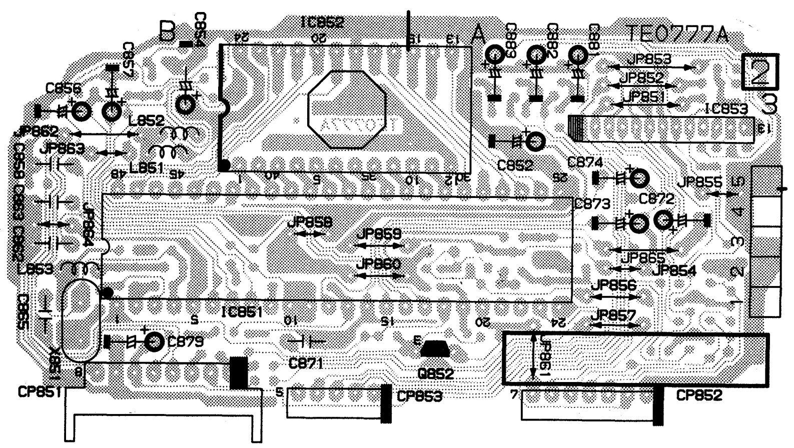


CONTROL

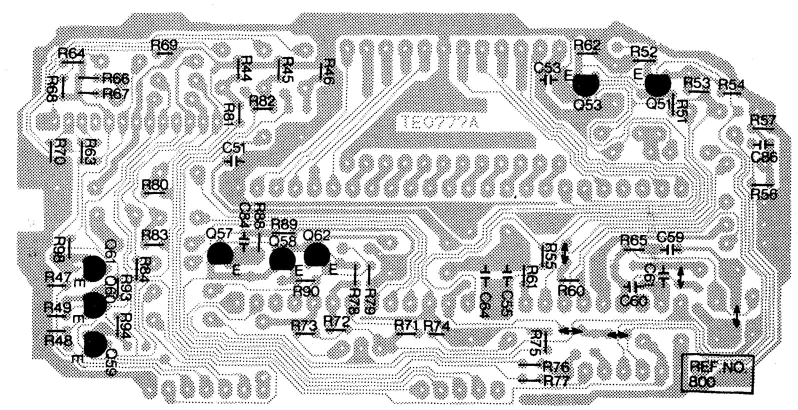


T'TEXT

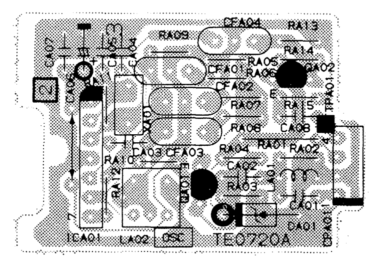
COMPONENT SIDE



SOLDER SIDE



DUAL



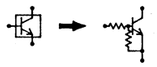
MICON SCHEMATIC DIAGRAM

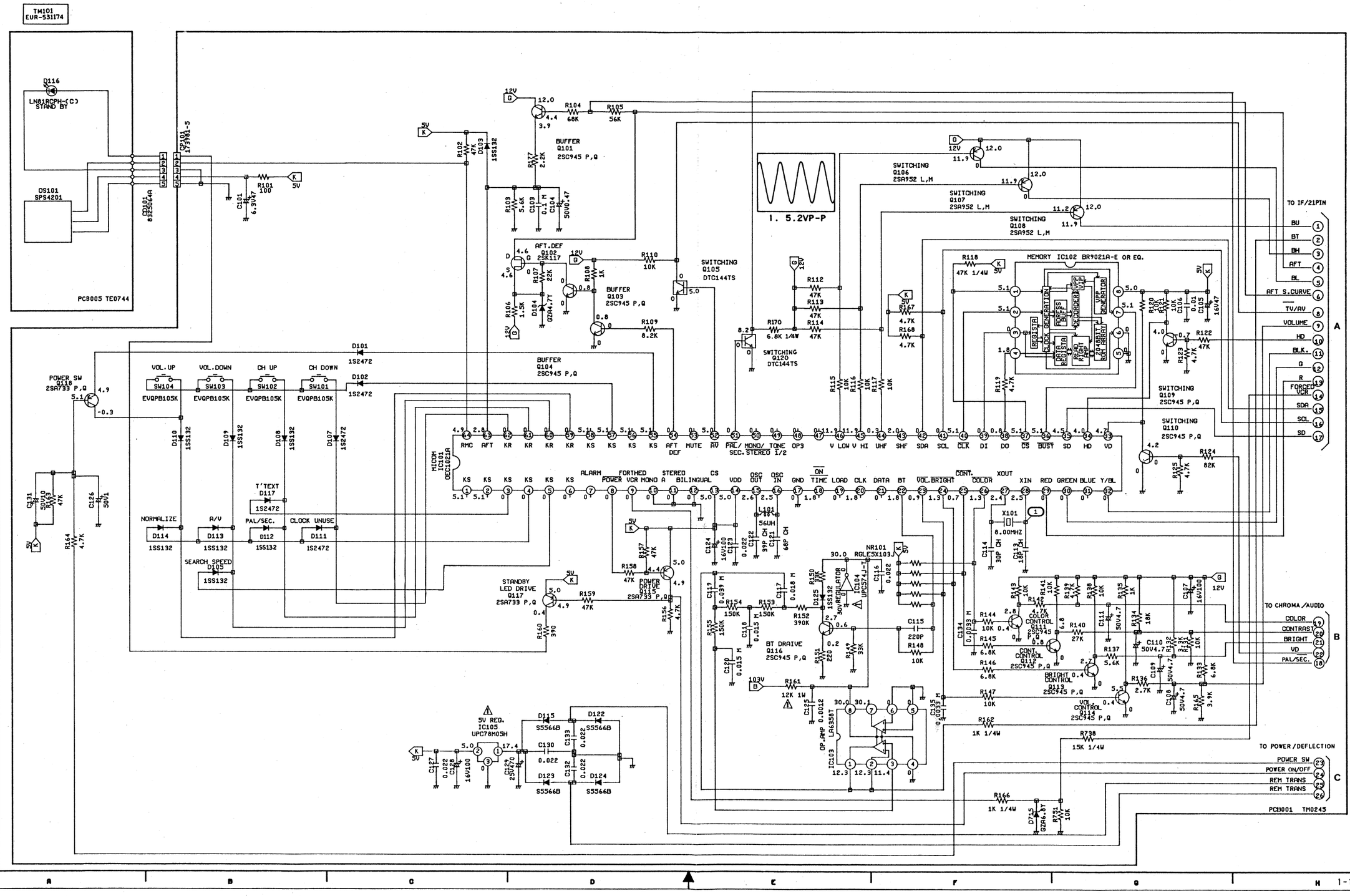
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED ON PARTS LIST ONLY.

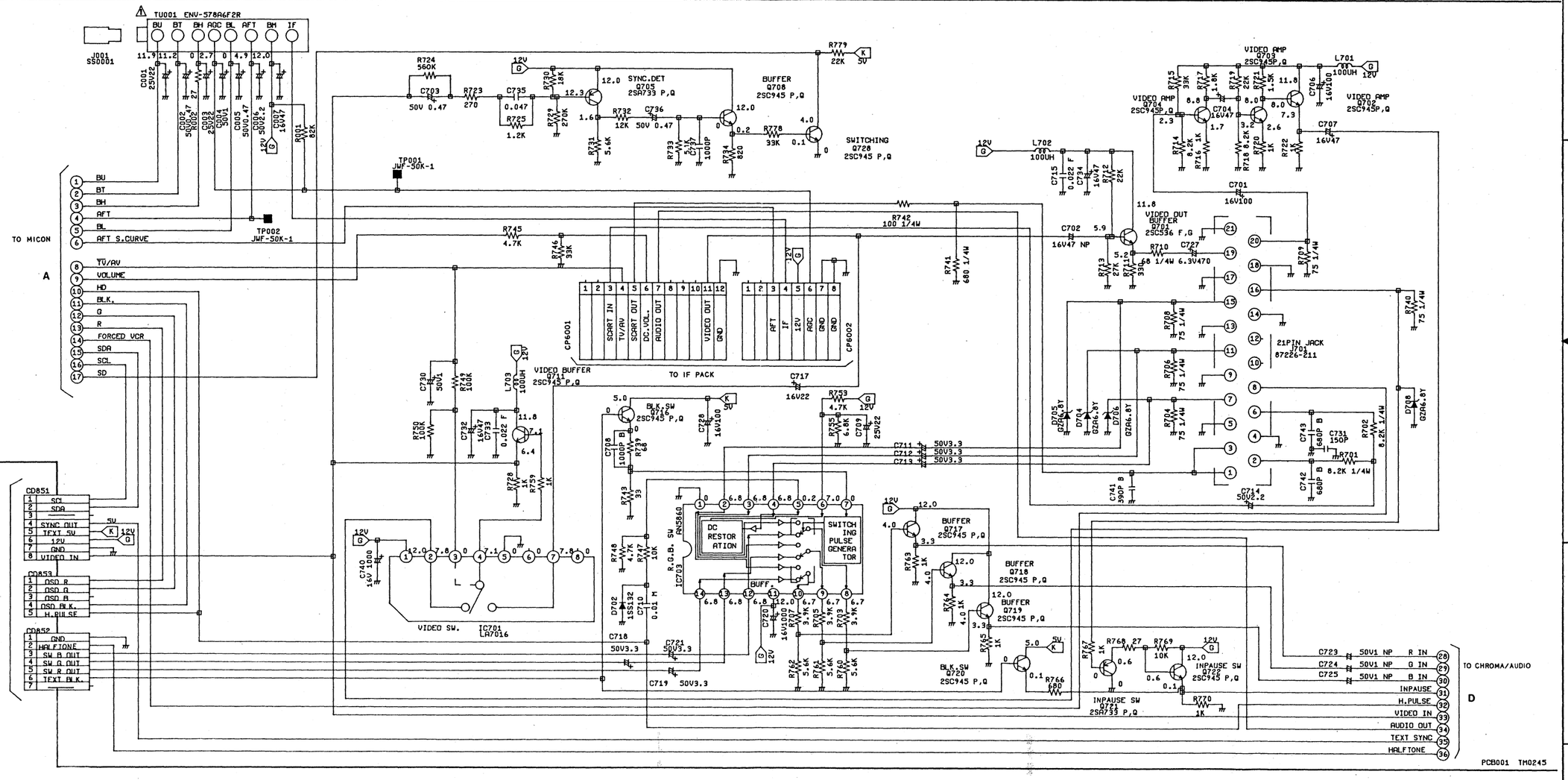
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: DIGITAL TRANSISTOR





IF/21PIN SCHEMATIC DIAGRAM



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NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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CHROMA/AUDIO SCHEMATIC DIAGRAM

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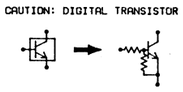
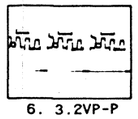
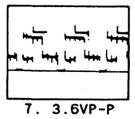
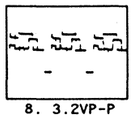
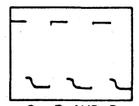
CAUTION: DIGITAL TRANSISTOR

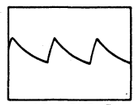


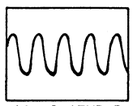

6. 3.2VP-P

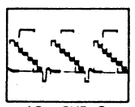

7. 3.6VP-P

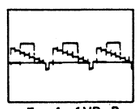

8. 3.2VP-P

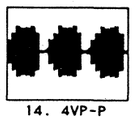

9. 5.1VP-P

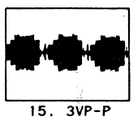

10. 2VP-P

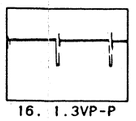

11. 0.17VP-P

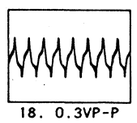

12. 2VP-P

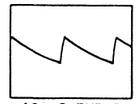

5. 1.1VP-P


14. 4VP-P


15. 3VP-P


16. 1.3VP-P

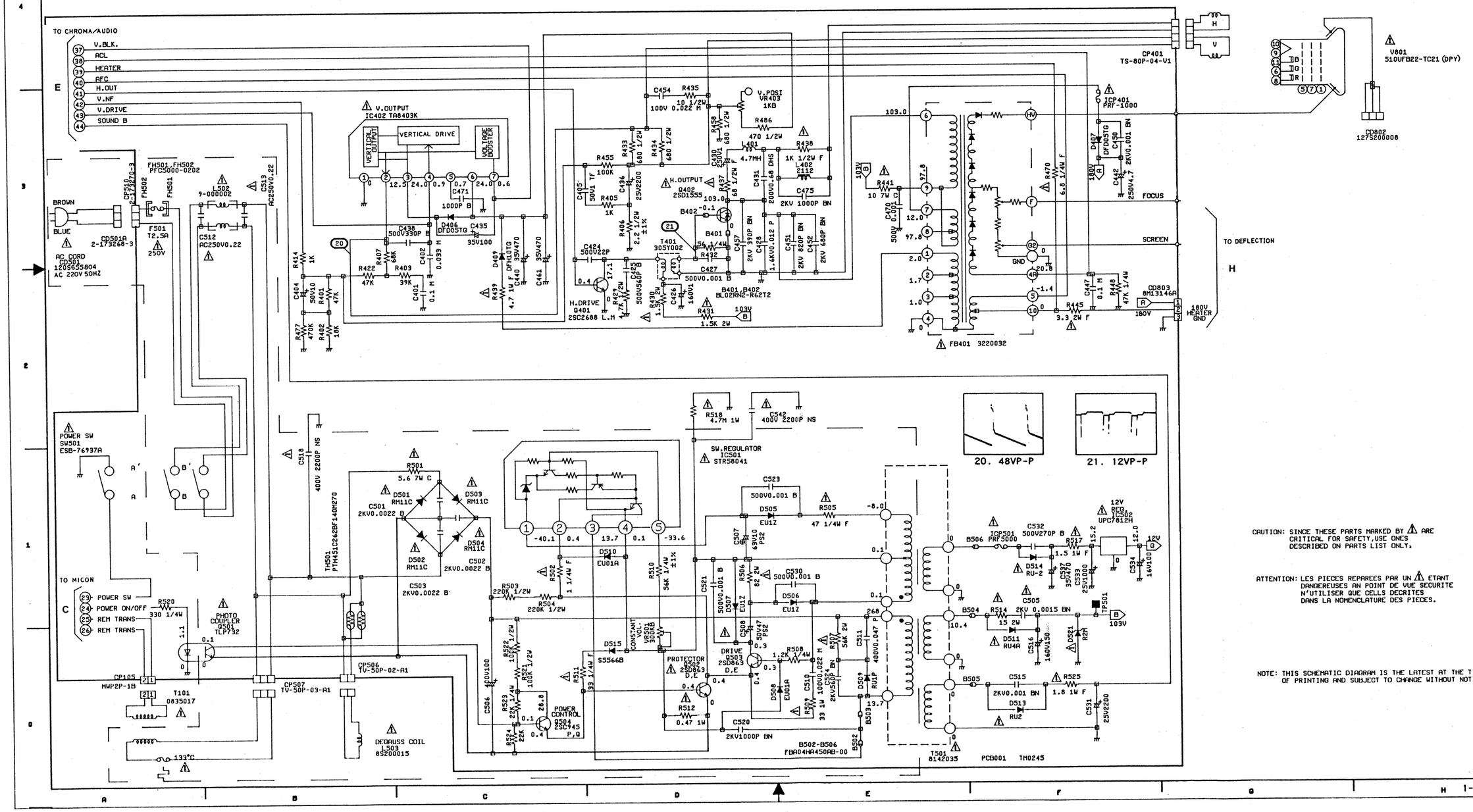

18. 0.3VP-P


13. 2.2VP-P

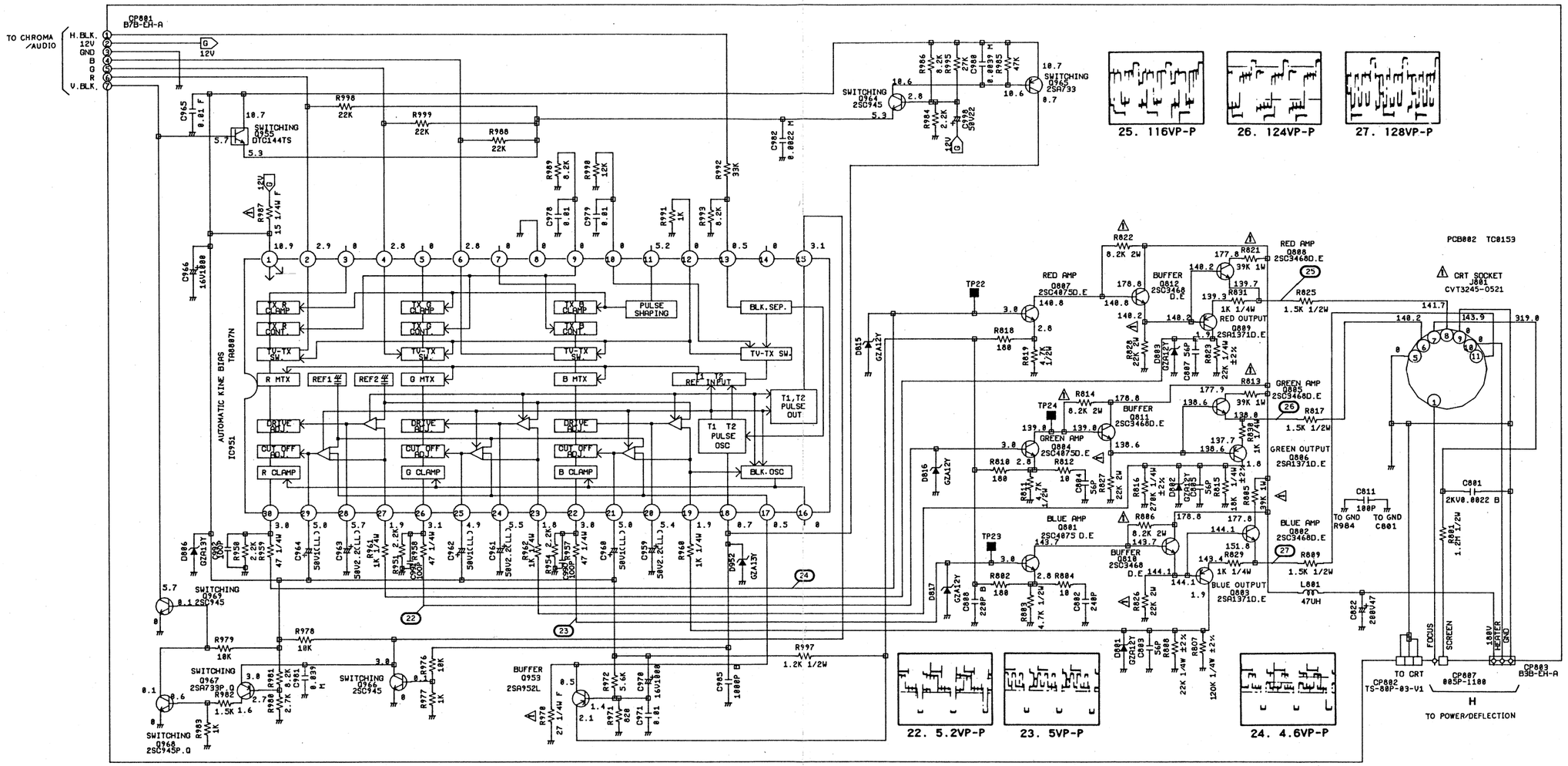
PCB001 TM0245

1-12594

POWER/DEFLECTION SCHEMATIC DIAGRAM



DEFLECTION SCHEMATIC DIAGRAM



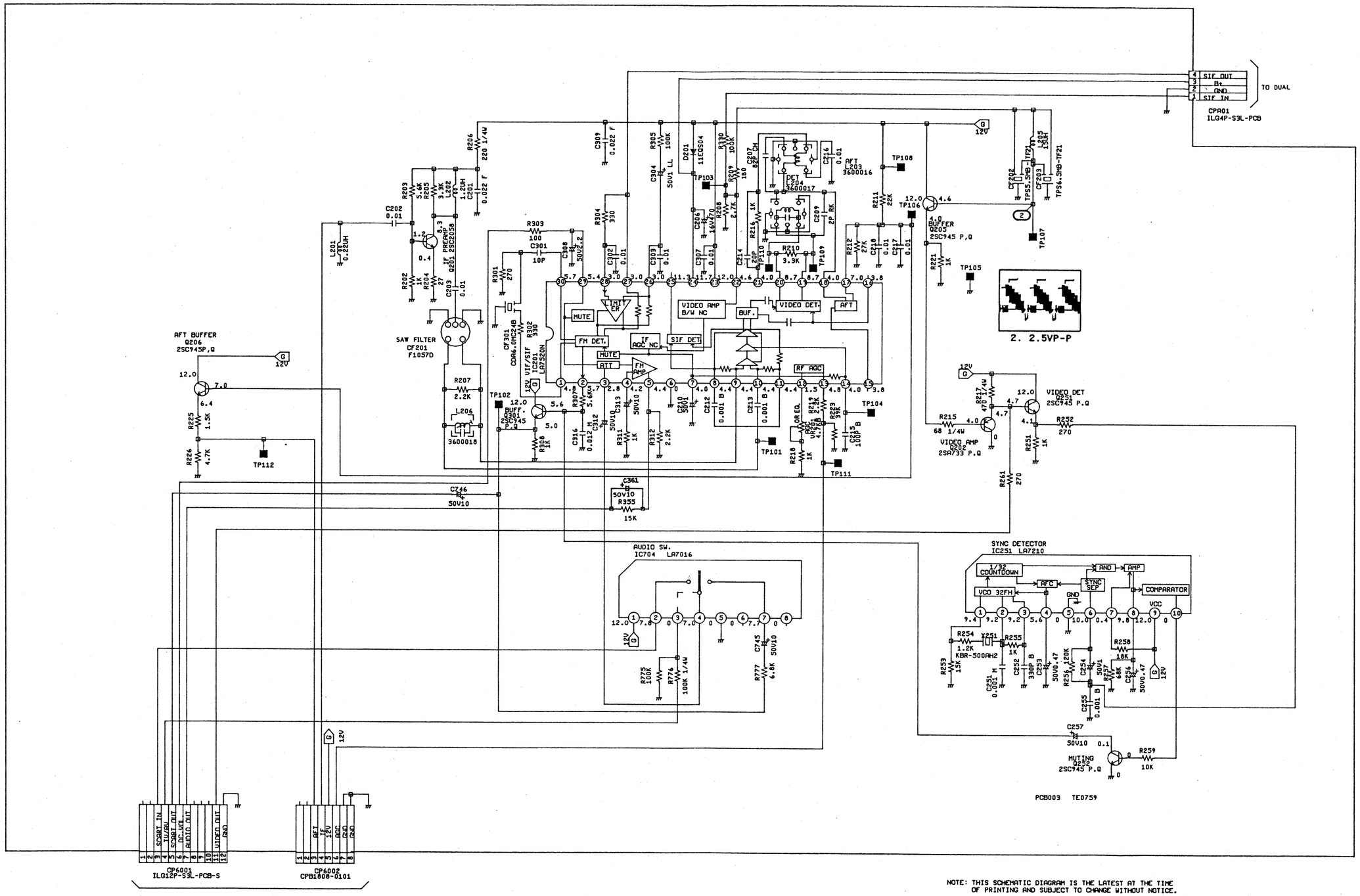
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

1-11142

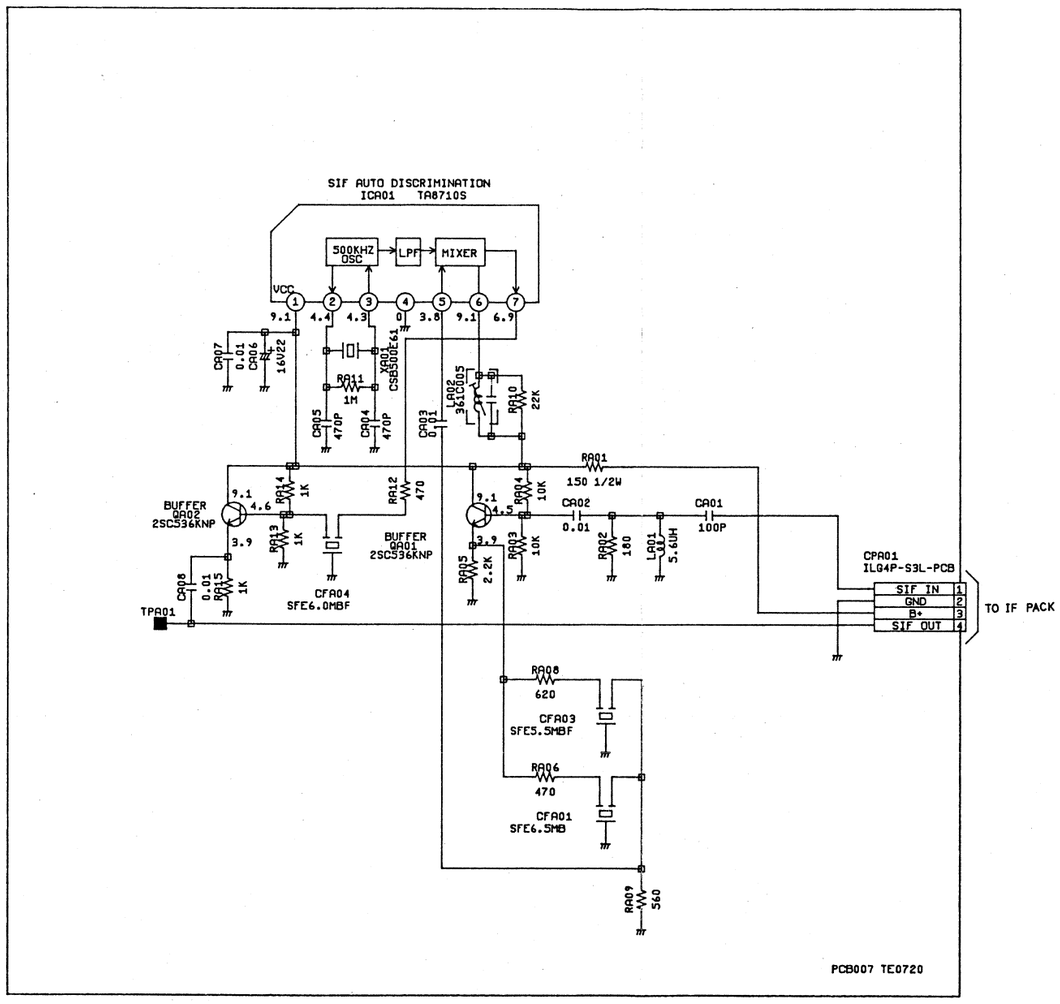
IF PACK SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

1-12159

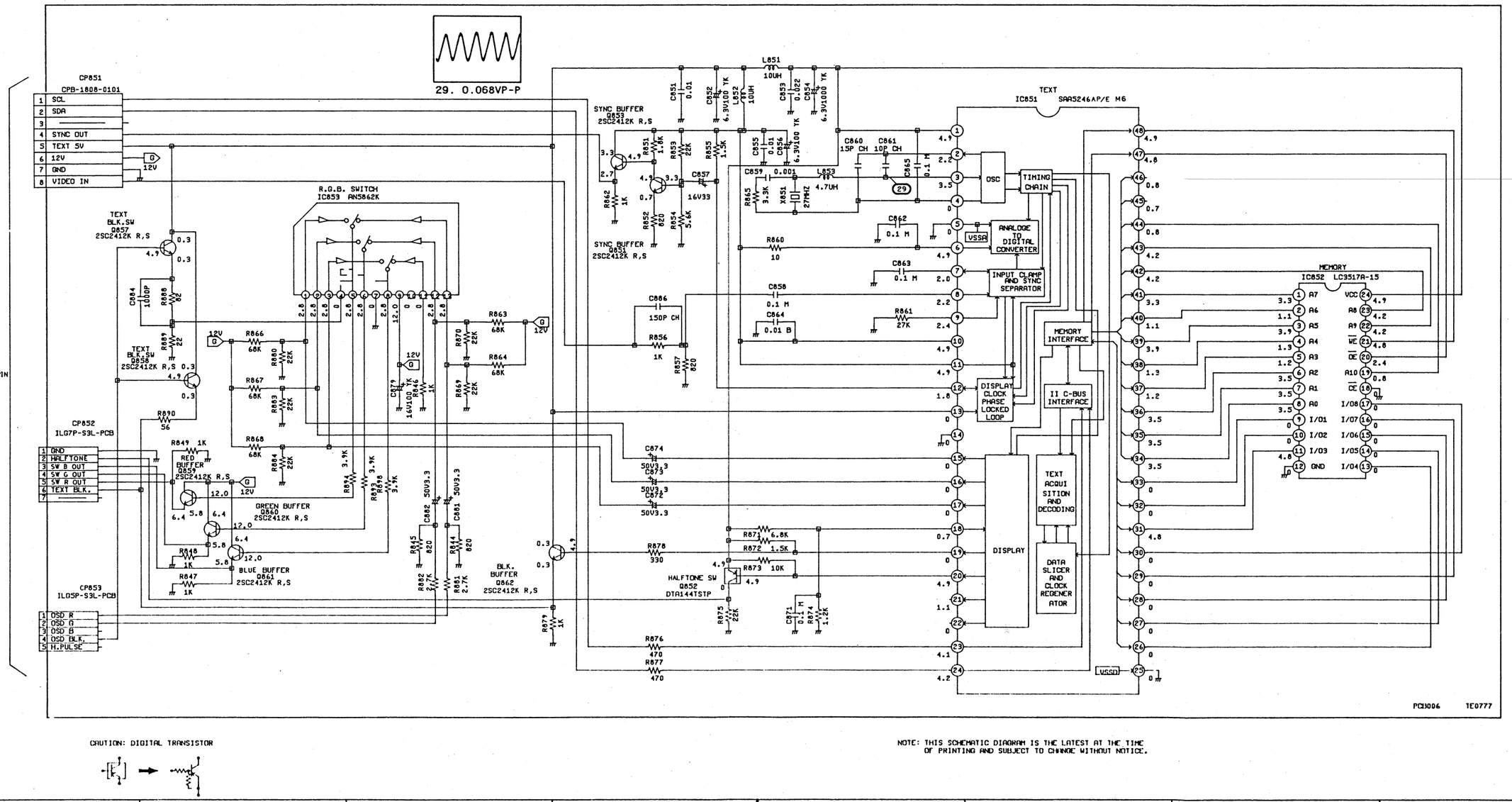
DUAL SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

1-12160

T'TEXT SCHEMATIC DIAGRAM

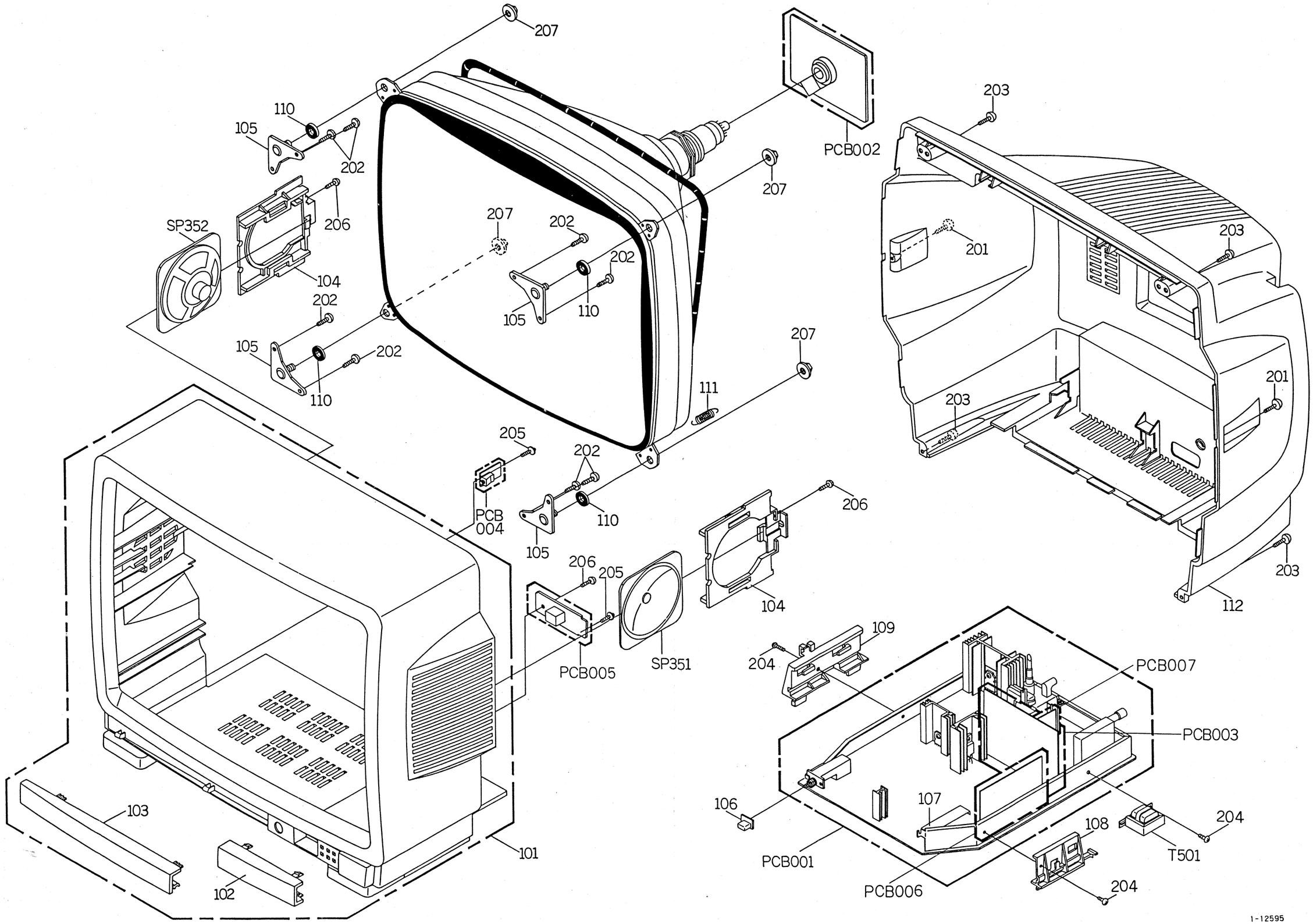


CAUTION: DIGITAL TRANSISTOR

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

1-12486

MECHANICAL EXPLODED VIEW



1-12595

MECHANICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	
101	A3A817A720	CABINET,FRONT ASS'Y	
	701MPJ0009	CABINET,FRONT	
	7230004450	SHEET,LED	
	7232020319	BADGE,BRAND	
	7240001027	SHEET,OPERATION	
	83SPN24000	PUSH NUT 2.4	
102	711MPD0019	PLATE,FRONT	
103	712MPJ0051	DOOR	
104	761MPA0002	HOLDER,SPEAKER	
105	762TSA0037	ANGLE,CRT	
106	735MPA0014	BUTTON,POWER	
107	752SSA0008	SHIELD,IC	
108	761MPA0009	HOLDER,FRONT PCB	
109	761WPA0015	HOLDER,MAIN PCB(R)	
110	800SR00007	SHEET,CRT SUPPORT	
111	741SUA0001	SPRING,EARTH	
112	A3A817A740	CABINET,BACK ASS'Y	
	702MPA0034	CABINET,BACK	
	7222021599	SHEET,RATING	
201	8117540B02	SCREW,TAPPING(BO) TRUSS	4*20
202	8117540B04	SCREW,TAPPING(BO) TRUSS	4*20
203	8117540A64	SCREW,TAPPING(BO) TRUSS	4*16
204	8107630604	SCREW,TAP TITE(S) BRAZIER	3*6
205	8117E30A04	SCREW,TAPPING(BO) WH10	3*10
206	8110630A04	SCREW,TAP TITE(P) BRAZIER	3*10
207	8300560004	SL NUT	M6
---	J3A20702	GUARANTEE CARD	
---	J3A80928	WARNING SHEET	
---	J3A81701	INSTRUCTION BOOK	
---	J3A81703	SCHEMATIC DIAGRAM	
---	759WPA0004	HOLDER,ANODE LEAD	
---	791MHA0004	LAMIFILM BAG	
---	792MHA0011	PACKAGE,TOP	
---	792MHA0012	PACKAGE,BOTTOM	
---	793MCD0167	GIFT BOX	

THIS ELECTRICAL PARTS LIST IS STANDARD PART LIST, BUT
INTERCHANGEABLE PARTS MAY BE USED IN THE UNIT.
SEE THE INTERCHANGEABLE PARTS LIST AFTER THE STANDARD PARTS LIST.

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
RESISTORS		
R002	R00106270J	RC 27 OHM 1/6W
⚠ R161	R3U181123J	R.METAL OXIDE 12K OHM 1W
R360	R00202560J	RC 56 OHM 1/2W
⚠ R430	R3U18A152J	R.METAL OXIDE 1.5K OHM 2W
⚠ R431	R3U18A152J	R.METAL OXIDE 1.5K OHM 2W
⚠ R437	R615U2680J	R.FUSE 68 OHM 1/2W
⚠ R438	R63582102J	R.FUSE 1K OHM 1/2W
⚠ R439	R615814R7J	R.FUSE 4.7 OHM 1W
⚠ R441	R5K2CE100J	R.CEMENT 10 OHM 7W
⚠ R445	R6148A3R3J	R.FUSE 3.3 OHM 2W
⚠ R470	R615U46R8J	R.FUSE 6.8 OHM 1/4W
⚠ R501	R5K2CE5R6K	R.CEMENT 5.6 OHM 7W
⚠ R502	R63584010J	R.FUSE 1 OHM 1/4W
⚠ R505	R615U4470J	R.FUSE 47 OHM 1/4W
⚠ R506	R3U18A820J	R.METAL OXIDE 82 OHM 2W
⚠ R507	R3U18A563J	R.METAL OXIDE 56K OHM 2W
⚠ R509	R3U181330J	R.METAL OXIDE 3 OHM 1W
⚠ R511	R615U4330J	R.FUSE 33 OHM 1/4W
⚠ R512	R4U181R47J	R.METAL 0.47 OHM 1W
⚠ R514	R3U28A150J	R.METAL OXIDE 15 OHM 2W
⚠ R517	R614811R5J	R.FUSE 1.5 OHM 1W
⚠ R518	R0L101475J	RC 4.7M OHM 1W
⚠ R525	R614811R8J	R.FUSE 1.8 OHM 1W
⚠ R805	R3U181393J	R.METAL OXIDE 39K OHM 1W
⚠ R806	R3U18A822J	R.METAL OXIDE 8.2K OHM 2W
⚠ R813	R3U181393J	R.METAL OXIDE 39K OHM 1W
⚠ R814	R3U18A822J	R.METAL OXIDE 8.2K OHM 2W
⚠ R821	R3U181393J	R.METAL OXIDE 39K OHM 1W
⚠ R822	R3U18A822J	R.METAL OXIDE 8.2K OHM 2W
⚠ R826	R3U18A223J	R.METAL OXIDE 22K OHM 2W
⚠ R827	R3U18A223J	R.METAL OXIDE 22K OHM 2W
⚠ R828	R3U18A223J	R.METAL OXIDE 22K OHM 2W
⚠ R970	R61584270J	R.FUSE 27 OHM 1/4W
⚠ R987	R615U4150J	R.FUSE 15 OHM 1/4W
CAPACITORS		
C360	P6M300274J	CMPL 0.27 UF 50V
C361	EORI05100M	CE 10 UF 50V
C362	P1M400472J	CP 0.0047UF 50V
C428	P412A9123H	CMPP 0.012 UF1.6KV
C431	P441F2684J	CMPP 0.68 UF 200V
C436	EOMIF3222M	CE 2200 UF 25V
C450	CONBBN713K	CC 1000 PF 2KV BN
C451	CONBBN7W2K	CC 820 PF 2KV BN
C452	CONBBN7U2K	CC 680 PF 2KV BN
C457	CONBBN7N2K	CC 390 PF 2KV BN
C470	COFTB0513K	CC 1000 PF 500V
C475	CONBBN713K	CC 1000 PF 2KV BN
C501	COFBB07H3K	CC 2200 PF 2KV B
C502	COFBB07H3K	CC 2200 PF 2KV B
C503	COFBB07H3K	CC 2200 PF 2KV B
C505	CONBBN7E3K	CC 1500 PF 2KV BN
C506	E03GFH101D	CE 100 UF 400V
C507	E02QF6100M	CE 10 UF 63V
C508	E02QF5470M	CE 47 UF 50V
C511	P3N1F4473J	CPP 0.047 UF 400V
⚠ C512	P2420A224M	CMP 0.22 UFAC125V/250V
⚠ C513	P2420A224M	CMP 0.22 UFAC125V/250V
C515	CONBBN713K	CC 1000 PF 2KV BN
C516	E025FB151M	CE 150 UF 160V
⚠ C518	CA1B30KH3M	CC 2200 PF 400V AC
C520	CONBBN713K	CC 1000 PF 2KV BN
C524	CONBBN7S2K	CC 560 PF 2KV BN
C531	EOMIF3222M	CE 2200 UF 25V
⚠ C542	CA1B30KH3M	CC 2200 PF 400V AC
C651	CONOSL4K1J	CC 27 PF 50V SL
C669	EORI02220M	CE 22 UF 16V
C703	EORI05R47M	CE 0.47 UF 50V
C731	CHG0B04E2J	CC 150 PF 50V
C801	COFBB07H3K	CC 2200 PF 2KV B
C822	EOMIFC470M	CE 47 UF 200V
C990	CONOSL412J	CC 100 PF 50V SL
C991	CONOSL412J	CC 100 PF 50V SL
C992	CONOSL412J	CC 100 PF 50V SL
C998	EOMI05220M	CE 22 UF 50V
SEMICONDUCTORS		
D101	D1VT024720	DIODE,SILICON 1S2472T-77
D102	D1VT024720	DIODE,SILICON 1S2472T-77
D103	D1VT001320	DIODE,SILICON 1SS132T-77
D104	D93T04R70Y	DIODE,ZENER GZA4.7 Y BT-T
D105	D1VT001320	DIODE,SILICON 1SS132T-77

REF.NO.	PART NO.	DESCRIPTION
SEMICONDUCTORS (CONT.)		
D107	D1VT024720	DIODE,SILICON 1S2472T-77
D108	D1VT001320	DIODE,SILICON 1SS132T-77
D109	D1VT001320	DIODE,SILICON 1SS132T-77
D110	D1VT001320	DIODE,SILICON 1SS132T-77
D111	D1VT024720	DIODE,SILICON 1S2472T-77
D112	D1VT001320	DIODE,SILICON 1SS132T-77
D113	D1VT001320	DIODE,SILICON 1SS132T-77
D114	D1VT001320	DIODE,SILICON 1SS132T-77
D115	D25T5566B0	DIODE,RECTIFIER S5566B(TPA3)
D116	0021121050	LED LN81RCPH-(C)
D117	D1VT024720	DIODE,SILICON 1S2472T-77
D122	D25T5566B0	DIODE,RECTIFIER S5566B(TPA3)
D123	D25T5566B0	DIODE,RECTIFIER S5566B(TPA3)
D124	D25T5566B0	DIODE,RECTIFIER S5566B(TPA3)
D125	D1VT001320	DIODE,SILICON 1SS132T-77
D201	D28TEQS040	DIODE,SCHOTTKY 11EQS04TA1
D402	D93T07R50Y	DIODE,ZENER GZA7.5 Y BT
D403	D93T09R10Y	DIODE,ZENER GZA9.1 Y BT
D404	D93T02000Y	DIODE,ZENER GZA20 Y BT
D405	D93T01100Y	DIODE,ZENER GZA11 Y BT
D406	D23TFD05TG	DIODE,RECTIFIER DFD05TG-BT
D407	D23TFD05TG	DIODE,RECTIFIER DFD05TG-BT
D409	D23TFH10TG	DIODE,RECTIFIER DFH10TG-AT1
D410	D23TFD05TG	DIODE,RECTIFIER DFD05TG-BT
D411	D1VT024720	DIODE,SILICON 1S2472T-77
D412	D1VT001320	DIODE,SILICON 1SS132T-77
⚠ D501	D2BTRM11C0	DIODE,RECTIFIER RM11C
⚠ D502	D2BTRM11C0	DIODE,RECTIFIER RM11C
⚠ D503	D2BTRM11C0	DIODE,RECTIFIER RM11C
⚠ D504	D2BTRM11C0	DIODE,RECTIFIER RM11C
D505	D2BT00EU1Z	DIODE,RECTIFIER EU1Z-V0
D506	D2BT00EU1Z	DIODE,RECTIFIER EU1Z-V0
D507	D2BT00EU1Z	DIODE,RECTIFIER EU1Z-V0
D508	D2BTOEU01A	DIODE,SILICON EU01AV0
D509	D2B00RU1P0	DIODE,RECTIFIER RU1P
D510	D2BTOEU01A	DIODE,SILICON EU01AV0
⚠ D511	D2BF0RU4A0	DIODE,SILICON RU4A
D513	D2BF00RU20	DIODE,SILICON RU-2
D514	D2BF00RU20	DIODE,SILICON RU-2
D515	D25T5566B0	DIODE,RECTIFIER S5566B(TPA3)
⚠ D521	D2B000R2M0	DIODE,AVALANCHE R2M
D610	D1VT024720	DIODE,SILICON 1S2472T-77
D661	D1VT001320	DIODE,SILICON 1SS132T-77
D662	D1VT001320	DIODE,SILICON 1SS132T-77
D663	D1VT001320	DIODE,SILICON 1SS132T-77
D664	D1VT024720	DIODE,SILICON 1S2472T-77
D702	D1VT001320	DIODE,SILICON 1SS132T-77
D704	D93T06R80Y	DIODE,ZENER GZA6.8 Y BT
D705	D93T06R80Y	DIODE,ZENER GZA6.8 Y BT
D706	D93T06R80Y	DIODE,ZENER GZA6.8 Y BT
D708	D93T06R80Y	DIODE,ZENER GZA6.8 Y BT
D715	D93T06R80Y	DIODE,ZENER GZA6.8 Y BT
D801	D93T01200Y	DIODE,ZENER GZA12 Y BT
D802	D93T01200Y	DIODE,ZENER GZA12 Y BT
D803	D93T01200Y	DIODE,ZENER GZA12 Y BT
D806	D93T01300Y	DIODE,ZENER GZA13 Y BT
D815	D93T01200Y	DIODE,ZENER GZA12 Y BT
D816	D93T01200Y	DIODE,ZENER GZA12 Y BT
D817	D93T01200Y	DIODE,ZENER GZA12 Y BT
D952	D93001300Y	DIODE,ZENER GZA13 Y
IC101	I52D01021A	IC OEC1021A
IC102	I57D09021E	IC BR9021A-E
IC103	I03D06358T	IC LA6358T
⚠ IC104	I0MI90574J	IC UPC574J-T
⚠ IC105	I0X398M050	IC UPC78M05H
IC201	I03DE7520N	IC LA7520N
IC251	I03S072100	IC LA7210
IC351	I0XDP12130	IC UPC1213C(MS)
IC401	I05DE8759A	IC TA8759AN
⚠ IC402	I05SD84030	IC TA8403K
⚠ IC501	I2B4980410	IC STR-58041
⚠ IC502	I0XA978120	IC UPC7812H
IC701	I03S070160	IC LA7016
IC703	I01D058600	IC AN5860
IC704	I03S070160	IC LA7016
IC851	I4KDF52460	IC SAA5246AP/E M6
IC852	I53D03517C	IC LC3517A-15
IC853	I01S0862K0	IC AN5862K
IC951	I05DE88070	IC TA8807N
Q101	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q102	T25T117GR5	FET 2SK117-GR(TPE2)
Q103	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
		SEMICONDUCTORS (CONT.)
Q104	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q105	TNQTD03002	COMPOUND TRANSISTOR DTC144TSTP
Q106	TAST009520	TRANSISTOR,SILICON 2SA952(C)-T
Q107	TAS0009520	TRANSISTOR,SILICON 2SA952(C)
Q108	TAST009520	TRANSISTOR,SILICON 2SA952(C)-T
Q109	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q110	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q111	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q112	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q113	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q114	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q115	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q116	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q117	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q118	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q120	TNQTD03002	COMPOUND TRANSISTOR DTC144TSTP
Q201	TCQT2058S0	TRANSISTOR,SILICON 2SC2058STP
Q202	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q205	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q206	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q251	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q252	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q301	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q401	TCS0026880	TRANSISTOR,SILICON 2SC2688(L),(M)
⚠ Q402	TDUF015550	TR.,SILICON 2SD1555(LBOEC,E)
Q403	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q404	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
⚠ Q501	0002500320	PHOTO COUPLER TLP732(D4 LF2)
Q502	TD3T008630	TRANSISTOR,SILICON 2SD863(D,E)-AE
Q503	TD3T008630	TRANSISTOR,SILICON 2SD863(D,E)-AE
Q504	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q603	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q605	TNQTD03001	COMPOUND TRANSISTOR DTC144ESTP
Q620	TNQTD03002	COMPOUND TRANSISTOR DTC144TSTP
Q695	TNQTD03002	COMPOUND TRANSISTOR DTC144TSTP
Q696	TNQTD03002	COMPOUND TRANSISTOR DTC144TSTP
Q697	TNQTD03002	COMPOUND TRANSISTOR DTC144TSTP
Q701	TC3T005360	TRANSISTOR,SILICON 2SC536NP-AA
Q702	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q703	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q704	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q705	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q708	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q711	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q716	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q717	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q718	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q719	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q720	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q721	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q722	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q728	TCST00945P	TRANSISTOR,SILICON 2SC945(C)-T P
Q801	TC3Q040750	TR.,SILICON 2SC4075(D,E)-YAC
Q802	TC3T034680	TRANSISTOR,SILICON 2SC3468(D,E)-AE
Q803	TA3T1371A0	TRANSISTOR,SILICON 2SA1371(D,E)-AE
Q804	TC3Q040750	TR.,SILICON 2SC4075(D,E)-YAC
Q805	TC3T034680	TRANSISTOR,SILICON 2SC3468(D,E)-AE
Q806	TA3T1371A0	TRANSISTOR,SILICON 2SA1371(D,E)-AE
Q807	TC3Q040750	TR.,SILICON 2SC4075(D,E)-YAC
Q808	TC3T034680	TRANSISTOR,SILICON 2SC3468(D,E)-AE
Q809	TA3T1371A0	TRANSISTOR,SILICON 2SA1371(D,E)-AE
Q810	TC3T034680	TRANSISTOR,SILICON 2SC3468(D,E)-AE
Q811	TC3T034680	TRANSISTOR,SILICON 2SC3468(D,E)-AE
Q812	TC3T034680	TRANSISTOR,SILICON 2SC3468(D,E)-AE
Q851	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q852	TPQTD03002	COMPOUND TRANSISTOR DTA144TSTP
Q853	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q857	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q858	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q859	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q860	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q861	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q862	T8QA2412K0	TRANSISTOR,SILICON 2SC2412KT147
Q953	TAST00952L	TRANSISTOR,SILICON 2SA952(C)-T L
Q955	TNQTD03002	COMPOUND TRANSISTOR DTC144TSTP
Q964	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q965	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q966	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q967	TAST007330	TRANSISTOR,SILICON 2SA733(C)-T
Q968	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T
Q969	TCST009450	TRANSISTOR,SILICON 2SC945(C)-T

REF.NO.	PART NO.	DESCRIPTION
		COILS & TRANSFORMERS
L101	021LA6560K	COIL 56 UH
L201	021LA6R22M	COIL 0.22 UH
L202	021LA61R2M	COIL 1.2 UH
L203	033600016U	COIL,VIDEO IFT 3600016
L204	033600017U	COIL,VIDEO IFT 3600017
L205	021LA6150K	COIL 15 UH
L206	033600018U	COIL,VIDEO IFT 3600018
L401	021679472K	COIL 4.7 MH
L402	022R000012	COIL,LINEARITY ELH-5L177M
L403	021LA6181K	COIL 180 UH
⚠ L502	029K000002	COIL,LINE FILTER 9-000002
⚠ L503	028S200015	COIL,DEGAUSS 8S200015
L601	03352R011S	COIL,CHROMA 352R011
L602	03352R011S	COIL,CHROMA 352R011
L603	03352R007S	COIL,CHROMA 16035SU
L604	021LA6100K	COIL 10 UH
L605	03302R002S	COIL,CHROMA 302R002
L606	03352R016S	COIL,CHROMA 352R016
L607	021LA6330K	COIL 33 UH
L612	021LA6470K	COIL 47 UH
L613	021LA6270K	COIL 27 UH
L701	021LA6101K	COIL 100 UH
L702	021LA6101K	COIL 100 UH
L703	021LA6101K	COIL 100 UH
L801	021673470K	COIL 47 UH
L851	021LA6100K	COIL 10 UH
L852	021LA6100K	COIL 10 UH
L853	021LA64R7K	COIL 4.7 UH
⚠ T101	0408350172	TRANSFORMER,POWER AC 0835017
T401	03305Y002S	TRANS.,HORIZONTAL DRIVE 305Y002
⚠ T501	048142035S	CONVERTER TRANS. 8142035
		JACKS
J001	063J200024	ANTENNA,CONVERTER SS0001
J351	060C121008	JACK,RCA 3.5 TC38-001
J701	063V100006	SOCKET,21PIN 87226-211
⚠ J801	0666130012	SOCKET,CRT CVT3245-0521
		SWITCHES
SW101	0504101T32	SWITCH,TACT EVQ PB1 05K
SW102	0504101T32	SWITCH,TACT EVQ PB1 05K
SW103	0504101T32	SWITCH,TACT EVQ PB1 05K
SW104	0504101T32	SWITCH,TACT EVQ PB1 05K
⚠ SW501	0530102008	SWITCH,PUSH ESB-76937A
		VARIABLE RESISTORS
VR201	V1H63Q3BT6	VR,SEMIFIXED EVNDXAA03BQ3
VR401	V1263Q4BT7	VR,SEMIFIXED RH0683CS4R04A
VR402	V1H63E2BT6	VR,SEMIFIXED EVNDXAA03BC2
VR403	V1F5313B06	VR,SEMIFIXED TM087V-QW1-102
VR501	V115335B05	VR,SEMIFIXED EVM-K4G-A00-B35
VR601	V1H6313BT6	VR,SEMIFIXED EVNDXAA03B13
VR602	V1H5233B03	VR,SEMIFIXED EVNK0AA00B33
VR603	V1H63H3BT6	VR,SEMIFIXED EVNDXAA03BE3
VR605	V1H5214B03	VR,SEMIFIXED EVNK0AA00B14
VR606	V1H5214B03	VR,SEMIFIXED EVNK0AA00B14
VR607	V1H63Q3BT6	VR,SEMIFIXED EVNDXAA03BQ3
		P.C. BOARD ASSEMBLIES
PCB001	A3A817A01AC	PCB ASS'Y TM0245-C
PCB002	A3A817A11A	PCB ASS'Y TC0153
PCB003	A3A817A35A	PCB ASS'Y TE0759
PCB004	A3A817A27A	PCB ASS'Y TE0745
PCB005	A3A817A03A	PCB ASS'Y TE0744
PCB006	A3A817A15A	PCB ASS'Y TE0777
PCB007	A3A817A24A	PCB ASS'Y TE0720
		MISCELLANEOUS
B401	024A8407C3	CORE,BEADS BL02RN2-R62T2
B402	024A8407C3	CORE,BEADS BL02RN2-R62T2
B502	024JT03551	CORE,BEADS FBA04HA450AB-00
B503	024JT03551	CORE,BEADS FBA04HA450AB-00
B504	024JT03551	CORE,BEADS FBA04HA450AB-00
B505	024JT03551	CORE,BEADS FBA04HA450AB-00
B506	024JT03551	CORE,BEADS FBA04HA450AB-00
BT001	1412004004	BATTERY,MANGAN UM-4(GR)
BT002	1412004004	BATTERY,MANGAN UM-4(GR)
CD101	068325064A	CORD,CONNECTOR 8325064A
CD352	068312346A	CORD,CONNECTOR 8312346A

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
	MISCELLANEOUS (CONT.)	
⚠ CD501	120S655804	CORD.AC BUSH 120S655804
CD701	1227042006	CORD.JUMPER 27042006
CD801	068M17118A	CORD.CONNECTOR 8-17118A
CD802	127S200008	BRAIDED WIRE M3A8(20J)
CD803	068M13146A	CORD.CONNECTOR 8M13146A
CFA01	1012006R51	FILTER.CERAMIC SFE6.5MB
CFA03	1012005R53	FILTER.CERAMIC SFE5.5MBF
CFA04	1012006R03	FILTER.CERAMIC SFE6.0MBF
CF201	1027038R97	FILTER.SAW F1057D
CF202	1012T5R503	FILTER.CERAMIC TRAP TPS5.5MB-TF21
CF203	1012T6R507	FILTER.CERAMIC TRAP TPS6.5MB-TF21
CF301	1012206R04	FILTER.CERAMIC DISCRI. CDA6.0MC24B
CPA01	069H140209	CONNECTOR PCB SIDE ILG4P-S3L-PCB-S
CP101	0694250129	CONNECTOR PCB SIDE 173981-5
CP105	0695120100	CONNECTOR PCB SIDE MWP2P-1B
CP352	069X120249	CONNECTOR PCB SIDE B2B-EH-A
CP401	069W340018	CONNECTOR PCB SIDE TS-80P-04-V1
CP506	069W420029	CONNECTOR PCB SIDE TV-50P-02-A1
CP507	069W430029	CONNECTOR PCB SIDE TV-50P-03-A1
CP510	0694430100	CORD.UX CONNECTOR 2-173270-3
CP801	069X170219	CONNECTOR PCB SIDE B7B-EH-A
CP802	069W330018	CONNECTOR PCB SIDE TS-80P-03-V1
CP803	069X130219	CONNECTOR PCB SIDE B3B-EH-A
CP807	069W010020	CONNECTOR PCB SIDE 005P-1100
CP851	069Q180179	CONNECTOR PCB SIDE CPB1808-0101
CP852	069H170209	CONNECTOR PCB SIDE ILG7P-S3L-PCB-S
CP853	069H150209	CONNECTOR PCB SIDE ILG5P-S3L-PCB-S
CP6001	069H1C0209	CONNECTOR PCB SIDE ILG12P-S3L-PCB
CP6002	069Q180179	CONNECTOR PCB SIDE CPB1808-0101
DL601	104Y14R43M	DELAY LINE GLASS EFD-EN645A61N
DL602	103S000406	DELAY LINE ELT10Z294N
⚠ F501	0808T2R502	FUSE T 2.5A 250V
⚠ FB401	043220032Q	TRANSFORMER.FLYBACK 3220032
FH501	06760T0001	HOLDER.FUSE PFC5000-0202
FH502	06760T0001	HOLDER.FUSE PFC5000-0202
ICA01	105SB8710S	IC TA8710S
⚠ ICP401	084E001001	IC PROTECTOR PRF-1000
⚠ ICP501	084E005001	IC PROTECTOR PRF-5000
LA01	021LA65R6K	COIL 5.6 UH
LA02	03361C005U	COIL.SOUND IFT 361C005
MS501	1283200020	SILICON.SHEET 3200020
NR101	1102510302	R.NETWORK RGLE5X103J
OS101	077S012001	REMOTE RECEIVER SPS-420-1
QA01	TC3T0536K0	TR.,SILICON 2SC536K(F,G)-NP-A
QA02	TC3T0536K0	TR.,SILICON 2SC536K(F,G)-NP-A
SP351	070Q143005	SPEAKER S102A80A32X225
SP352	070Q143005	SPEAKER S102A80A32X225
TH501	D8R0F140M0	DEGAUSS ELE. PTH451C262BF140M270
TM101	076G047180	TRANSMITTER EUR-531174
⚠ TU001	0145S05013	TUNER,UHF-VHF ENV-578A6F2R
⚠ V801	098Q200438	C.PICTURE TUBE 510UFB22-TC21(DPY)
XA01	1002R50006	CERAMIC OSCILLATOR CSB500E61
X101	100WA8R003	CRYSTAL HC-49/U 8.00MHZ
X251	1003R50001	CERAMIC OSCILLATOR KBR-500AH2
X401	1002R01502	CERAMIC OSCILLATOR CSB503F30
X601	10054R4301	CRYSTAL NR-18 4.433619MHZ
X851	100CA02702	CRYSTAL HC-49/U 27.0MHZ

RESISTOR
RC.....CARBON RESISTOR

CAPACITORS
CC.....CERAMIC CAPACITOR
CE.....ALUMI ELECTROLYTIC CAPACITOR
CP.....POLYESTER CAPACITOR
CPP.....POLYPROPYLENE CAPACITOR
CPL.....PLASTIC CAPACITOR
CMP.....METAL POLYESTER CAPACITOR
CMPL.....METAL PLASTIC CAPACITOR
CMPP.....METAL POLYPROPYLENE CAPACITOR
CST.....STYROL CAPACITOR

INTERCHANGEABLE PARTS LIST

MODEL COLOR 520 DK
REVISION
CHASSIS CODE B

NOTE: THE FOLLOWING PART(S) MAY BE SUBSTITUTED FOR PARTS INDICATED IN THE ELECTRICAL REPLACEMENT PARTS LIST (WITH THE SAME REF.NO.). THESE PARTS SHARE THE SAME ELECTRICAL CHARACTERISTICS AND OTHER ELEMENTS FOR COMMON USAGE. EITHER PART NUMBER MAY BE USED IN THIS UNIT.

	BASE		REPLACEMENT	
REF.NO.	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
DL601	104Y14R43M	EFD-EN645A61N	104W14R43F 104114R43G 104Y14R43G	ADL-CP145R EFDEN645A31F EFDEN645A31F
IC102	157D09021E	BR9021A-E	157D9021BE	XRM9021B